INTEGRATED SAFETY MANAGEMENT & QUALITY ASSURANCE
Fall 2021 Virtual Meeting November 3, 2021

Safety Culture Task Team Break-Out Session

Time	Min.	Wednesday, November 3, 2021	Speakers / Facilitators
Call-In Information		**MS Teams:** Click here to join the meeting **Join by phone:** +1 509-931-1284,,992842721# Phone Conference ID: 992 842 721#	N/A
1:00 pm EST 10:00 am PST	(10 Min.)	Safety Culture Task Team • Welcome and Introductions • Review the agenda Attendance	A. King D. Hammond
1:10 pm EST 9:50 am PST	(50 Min.)	DOE Opening Remarks • Integrated Safety Management (ISM) • Safety Culture Improvement Panel (SCIP) / Safety Culture • SCIP Community of Practice (CoP) / OrgEx • OPEXSHARE	K. Dressman & M. Ferullo J. Goeckner R. Shah & J. Appleton M. Dikeakos
2:00 pm EST	(10 Min.)	Break	
2:10 pm EST 11:10 am PST	(40 Min.)	New Predictive Paths to Safety Through Behavioral Science	J. Ramirez

2:50 pm EST
11:10 am PST
	(100 Min.)	Safety Culture Task Team
		• EFCOG Overview
		• Leadership Succession
		• FY21 completed actions
		  ○ Metrics Pilot
		  ○ Teleworking Best Practices & Pilot
		• Solicitation for Best Practice ideas
		• FY22 Activity Planning
		  ○ Benchmarking of Process and Product Efficiencies
		  ○ Practitioner Guide on Interface and Communications
		• Other Activities
			A. King
			D. Hammond

4:30 pm EST 1:30 pm PST		Adjourn	

Time Zone Key

Zone	Time
EST	10:30
CST	09:30
MST	08:30
PST	07:30

EFCOG Fall Meeting Links

OPEXSHARE: https://doeopexshare.doe.gov/

Organizational Excellence (OrgEx): https://orgex.energy.gov/forums/safety-culture/scip-community-practice

EFCOG Safety Culture Task Team webpage: https://efcog.org/safety/integrated-safety-management-subgroup/safety-culturehro-task-group/

EFCOG Safety Culture Task Team Guides and White Papers: https://efcog.org/fileaframe-swg-ism-safety-culture-hro/?drawer1=_Safety Culture HRO*EFCOG Safety Culture Guides

EFCOG Safety Culture Task Team Best Practices: https://efcog.org/fileaframe-swg-ism-safety-culture-hro/?drawer1=_Safety Culture HRO*EFCOG Safety Culture Best Practices

Examples of Safety Culture Lessons Learned and Best Practices in OPEXSHARE:

- Traits of a Healthy Nuclear Safety Culture https://doeopexshare.doe.gov/lesson/3859
- Independent Oversight Follow-up Assessment of Safety Culture at the Waste Treatment and Immobilization Plant, June 2014 https://doeopexshare.doe.gov/lesson/4338
- Trust but Verify for Effective Safety Culture! https://doeopexshare.doe.gov/lesson/15952
- Improving the Safety Culture through Effective Communication and Dialogue https://doeopexshare.doe.gov/lesson/13481
- A Questioning Attitude Is Crucial Component in a Thriving Nuclear Safety Culture https://doeopexshare.doe.gov/lesson/3926
- Management of Nuclear Construction Projects That Exceed $1 Billion: Impact on Nuclear Safety Culture https://doeopexshare.doe.gov/lesson/3043
- Measuring Safety Culture https://doeopexshare.doe.gov/lesson/1579
- Addressing Safety Questions that do not Meet "Stop Work" Thresholds https://doeopexshare.doe.gov/lesson/3974
- Continuous Learning: The Event Investigation Team Reunion https://doeopexshare.doe.gov/lesson/14677
- "I Have a Concern" - Clear and Concise Communication Needed for Suspending or Stopping Work https://doeopexshare.doe.gov/lesson/4372
- Who Is In Charge? https://doeopexshare.doe.gov/lesson/4708
- Who Is In Charge? Part 2 https://doeopexshare.doe.gov/lesson/4709

- Analysis of ISM Activity-level Work Planning and Control Within the Department of Energy https://doeopexshare.doe.gov/lesson/3797

- Best Practice: Use Peer Coaching to Improve Presentations https://doeopexshare.doe.gov/lesson/14721

- Conduct of Operations vs. Normalization of Deviance https://doeopexshare.doe.gov/lesson/4145

- Common Cause Analysis of Recurring Vehicle Accidents at Hanford https://doeopexshare.doe.gov/lesson/1927

- Good practice: Lab Work Planning Assessments Strengthen Operational Discipline in EED https://doeopexshare.doe.gov/lesson/9043

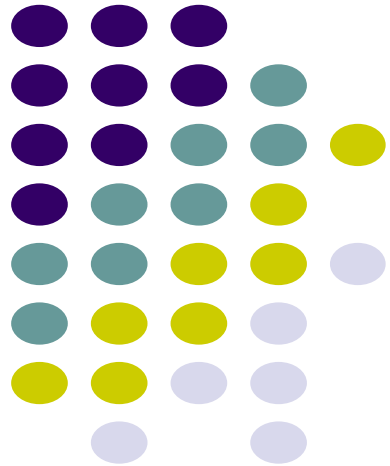
- DOE RL Safety Culture Good Practices Evaluation Report https://doeopexshare.doe.gov/lesson/3299

Safety Culture Task Team

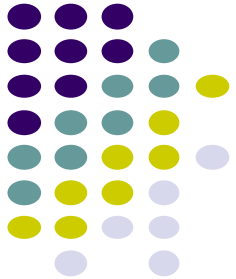
Adrienne King, WRPS

Davyda Hammond, ORAU

November 3, 2021



Welcome!



Agenda for Wednesday, November 3, 2021

- Introductions
- Meeting Overview
  - DOE Opening Remarks
  - Guest Presentation
  - Safety Culture Task Team Business

Please mute when not speaking!

Introductions/Opening Remarks

Kevin Dressman, Director
Office of Health and Safety (AU-10)

Moriah Ferullo
ISM Program Manager (AU-11)

EFCOG Safety Culture Task Team Session
November 3, 2021

Office of Environment, Health, Safety and Security

Safety Culture and Safety Culture Improvement Panel (SCIP)

Julie A. Goeckner
Sr. Advisor for Safety Culture & SCIP Executive Secretary
November 3, 2021

Safety Culture & SCIP

- Safety Culture - Website
  - Updated Energy.gov primary page
    - Departmental expectations -- Secretary of Energy video
    - Policy, Guidance, and Definitions to emphasize concepts within the ISM framework
    - DOE's Safety Culture Journey (leadership video)
    - Informational Links – SCIP, Policies
  - Future sub-page updates to link for resources and reference materials
  - Link: https://www.energy.gov/safety-culture/doe-safety-culture

Safety Culture & SCIP

- Safety Culture - Training
  - TLP-200, Safety Culture for DOE/DOE Contractor Leaders
  - TLP-150, Safety Culture for Front Line Leaders (first line supervisors)
  - TLP-100, Safety Culture for Employees
    - Deployed for classroom use
    - Virtual pilot completed; will be deployed in near future
    - TLP-150 certified instructors
  - Submit training requests now to get in the cue
  - To become TLP-150 and TLP-100 certified, contact Catherine Zappia at czappia@ntc.doe.gov or (505) 845-2171

Safety Culture & SCIP

- SCIP FY 2022 Annual Plan
- Energy.gov SCIP website–primary page update
  - Deputy Secretary Sponsorship
  - Links to Strategic Plan, initial and revised Charters
  - Links to Membership and Working Groups
  - Future updates to: Leadership, Employee/Worker Engagement, and Organizational Learning sub-pages
  - Link: https://www.energy.gov/safety-culture/safety-culture-improvement-panel

SCIP CoP

EFCOG update

Office of Environment, Health, Safety and Security

Agenda

1. Community of Practice
2. Vision/Mission
3. Stories from the Field
4. ORGEX website
5. Comments and Questions

Community of Practice

A community of practice is a group of professionals who interact with each other within an organization, across organizational units, or even organizational boundaries; have a common interest or field of application in certain work-related topics; and share their knowledge on a regular basis.

The objective is for members to learn and support one another to create, capture, spread, retain, and apply knowledge relevant to the organization.

CoP traits

- A community of practice is a knowledge sharing forum for practitioners of a discipline or topic, or those interested in addressing a specific concern.
- Members have a shared purpose or common goal and are often internally motivated, as opposed to having some external driver.
- Members value all kinds of knowledge (including, for instance, hunches as well as demonstrable scientific knowledge) that transpires within a community.
- A community of practice is a joint enterprise that has its own identity, which is continually renegotiated by its members, and individuals become members through shared practices and involvement in common activities (e.g., storytelling).
- Typically, relationships develop and trust is generated over time.
- Generally, communities of practice have a long-term orientation on knowledge creation and knowledge sharing.
- The community structure provides broad access to peers and experts who share experiences and innovative ideas and is not constrained by the conventions of traditional hierarchical structures.

Vision

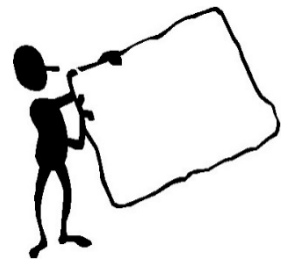
SCIP Communities of Practice are groups of practitioners who champion performance and reliability and build enduring resilience in their organizations. Safety culture practitioners learn how to foster a positive safety culture as they regularly interact, engage in joint activities and discussions, and help each other on their journeys toward overall organizational excellence.

Leadership-Employee Engagement-

Organizational Learning

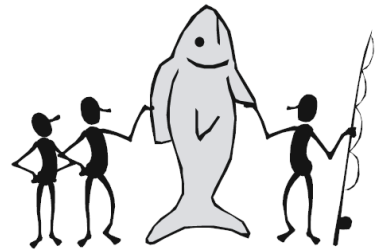
Mission

SCIP CoP facilitates the exchange of information amongst DOE Federal employees and its Contractor safety culture communities of practice.



Every individual counts

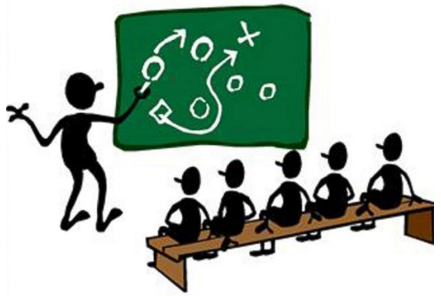
Every story has value



Story Time

“Stories from the Field”

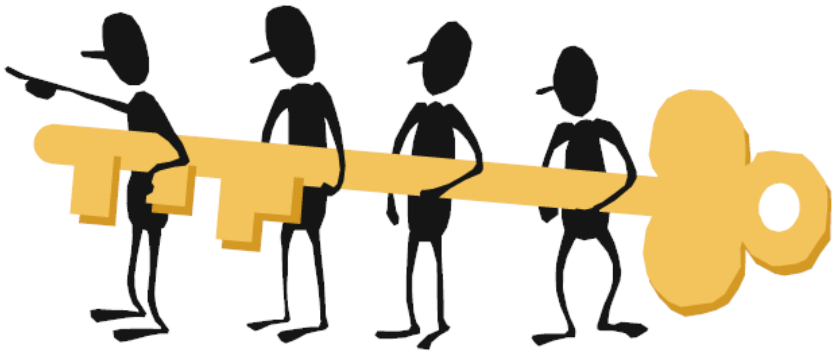
Our community is a place for sharing problems and resolutions, your stories on local efforts, and ideas for a more significant impact across the complex. We can work together to identify common issues affecting organizational effectiveness. We will use our stories to achieve synergy in building performance and reliability, giving purpose, and focusing on activities that add value.



Organizational Excellence website

We will post everything related to our Community of Practice here:

https://orgex.energy.gov/forums/safety-culture/scip-community-practice



Comments and Questions

DOE Operating Experience Program

Briefing for the EFCOG Safety Culture Task Team

November 3, 2021

Maria Dikeakos

DOE Corporate Operating Experience and Lessons Learned Program Manager

Office of ESH Reporting and Analysis, AU-23

Office of Environment, Health, Safety and Security

The DOE OpEx Program & ISM Safety Culture Focus Areas

DOE O 210.2A, *DOE Corporate Operating Experience Program*

Purpose: To institute a DOE wide program…

> … for the management of operating experience complex-wide to prevent adverse operating incidents and facilitate the sharing of good work practices among DOE sites, while enabling tailored local operating experience programs…
>
> … reinforcing the core functions and guiding principles of DOE's ISMS …

Today's Discussion

Key Operating Experience (OPEX) Program Tools

- Operating Experience Documents
- Operating Experience Committee (OEC)
- DOE OPEXShare

- Metrics and Quality Assurance

What evidence do we have that we are learning?

EFCOG Partnership: What synergies can we leverage and expand on to improve outputs and program effectiveness?

Key OPEX Program Tools

- Operating Experience Documents
  - OE-1,2,3 documents & Operating Experience Summaries
  - *DOE Corporate must produce and disseminate operating experience issues through actionable or informative operating experience documents.*
  - ***EFCOG Partnership:*** *How can input and experience from EFCOG help inform planning for the most compelling and informative OPEX documents?*

- Operating Experience Committee (OEC)
  - Forum for OPEX Program Coordinators to facilitate worker and management communication and learning from operating experience.
  - *DOE Corporate promotes and manages the OEC.*
  - *OEC members perform reviews to evaluate operating experience from DOE and related government industry programs, technologies, and facilities.*
  - ***EFCOG Partnership:*** *Are there missed opportunities for EFCOG and OEC to work synergistically in agenda planning and operational focus?*

Key OPEX Program Tools

- DOE OPEXShare
  - Lessons Learned, Best Practices, Success Stories
  - *Operating Experience must be centrally collected, stored, and retrieved to allow ready access to and communication of collected information in a timely, unimpeded basis by all DOE elements.*
  - *Each organization identifies significant issues and lessons learned to make available to the DOE complex.*
  - ***EFCOG Partnership:*** *How can DOE OPEXShare provide the most effective platform to share and use best practices and lessons identified by EFCOG?*

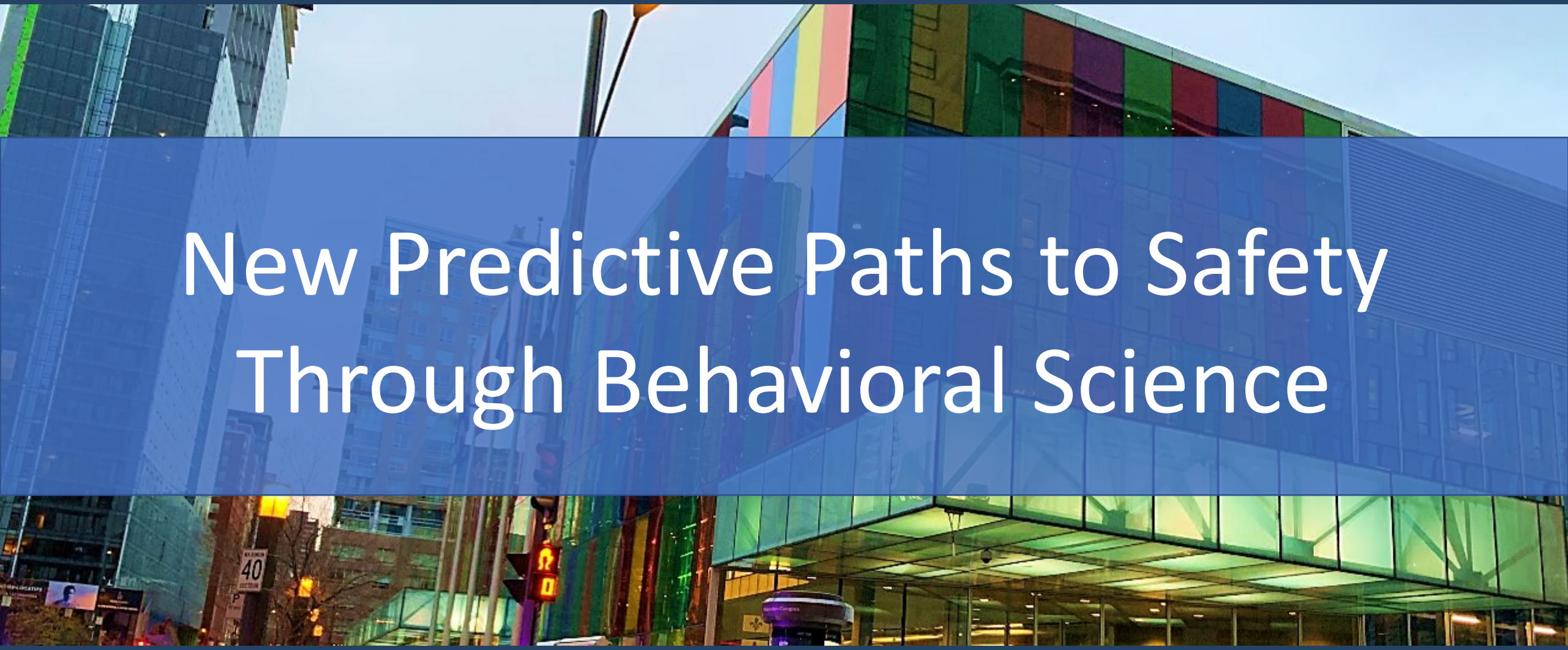
- Metrics and Quality Assurance
  - What evidence do we have that we are learning?
  - *DOE Corporate/Organizations implement and sustain an effective program*
  - *Perform self-assessments to guide ongoing program improvement*
  - ***EFCOG Partnership:*** *What metrics are effective at a site- or DOE-wide level to gauge how the OPEX program supports DOE organizational learning?*

Feedback and Questions

- ***EFCOG Partnership:*** *How can input and experience from EFCOG help inform planning for the most compelling and informative OpEx documents?*
- ***EFCOG Partnership:*** *Are there missed opportunities for EFCOG and OEC to work synergistically in agenda planning and operational focus?*
- ***EFCOG Partnership:*** *How can DOE OPEXShare provide the most effective platform to share and use best practices and lessons identified by EFCOG?*
- ***EFCOG Partnership:*** *What metrics are effective at a site- or DOE-wide level to gauge how the OPEX program supports DOE organizational learning?*

Break
2:00 – 2:10 pm EST, Wednesday

Next: New Predictive Paths to Safety Through Behavioral Science by Dr. Josh Ramirez



New Predictive Paths to Safety Through Behavioral Science

Dr. Josh E. Ramirez, NPPQ, PMP

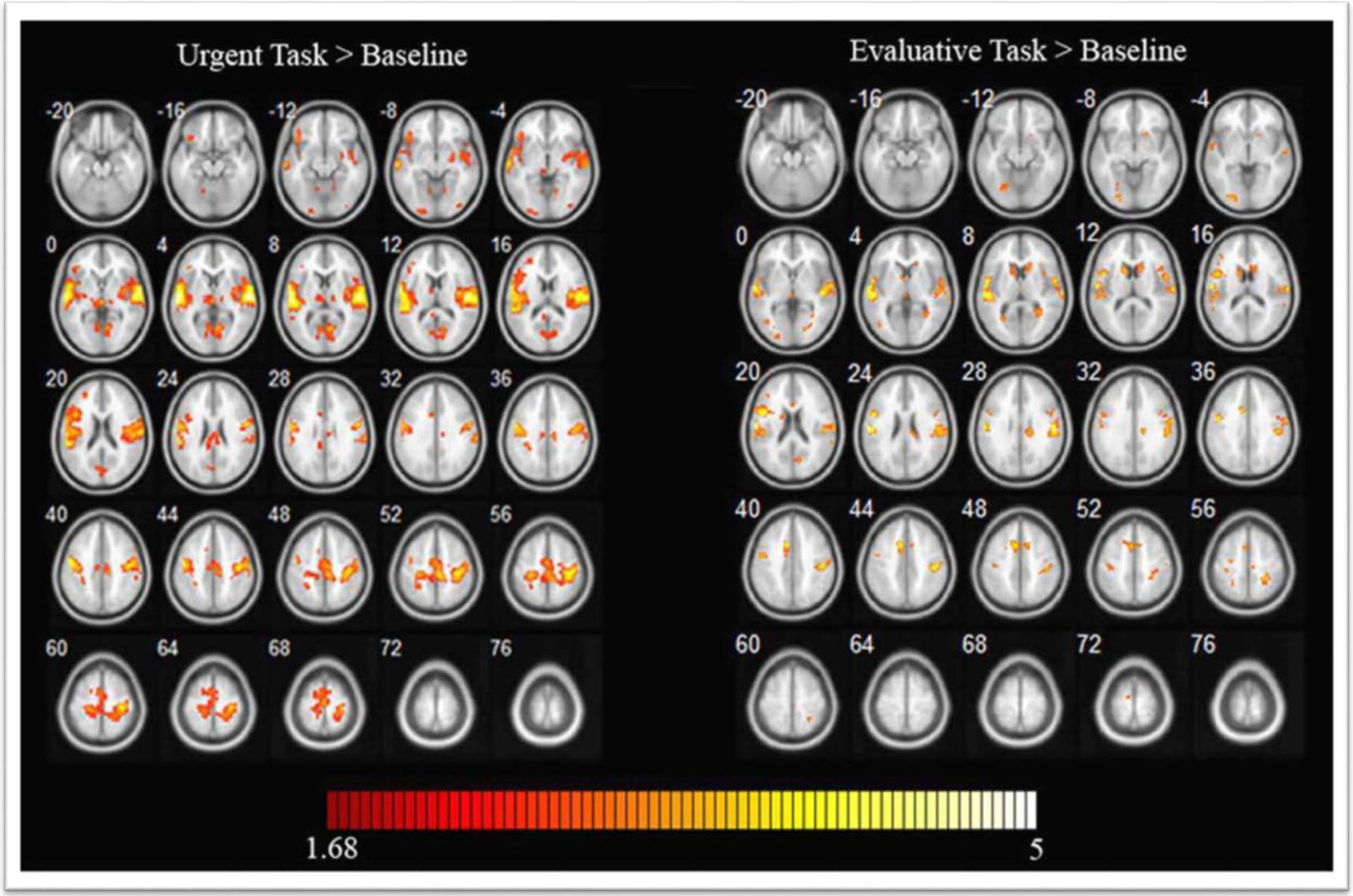
Washington River Protection Solutions

"All you see is all there is"

~ Dr. Daniel Kahneman, Nobel Prize Winner in Behavioral Economics

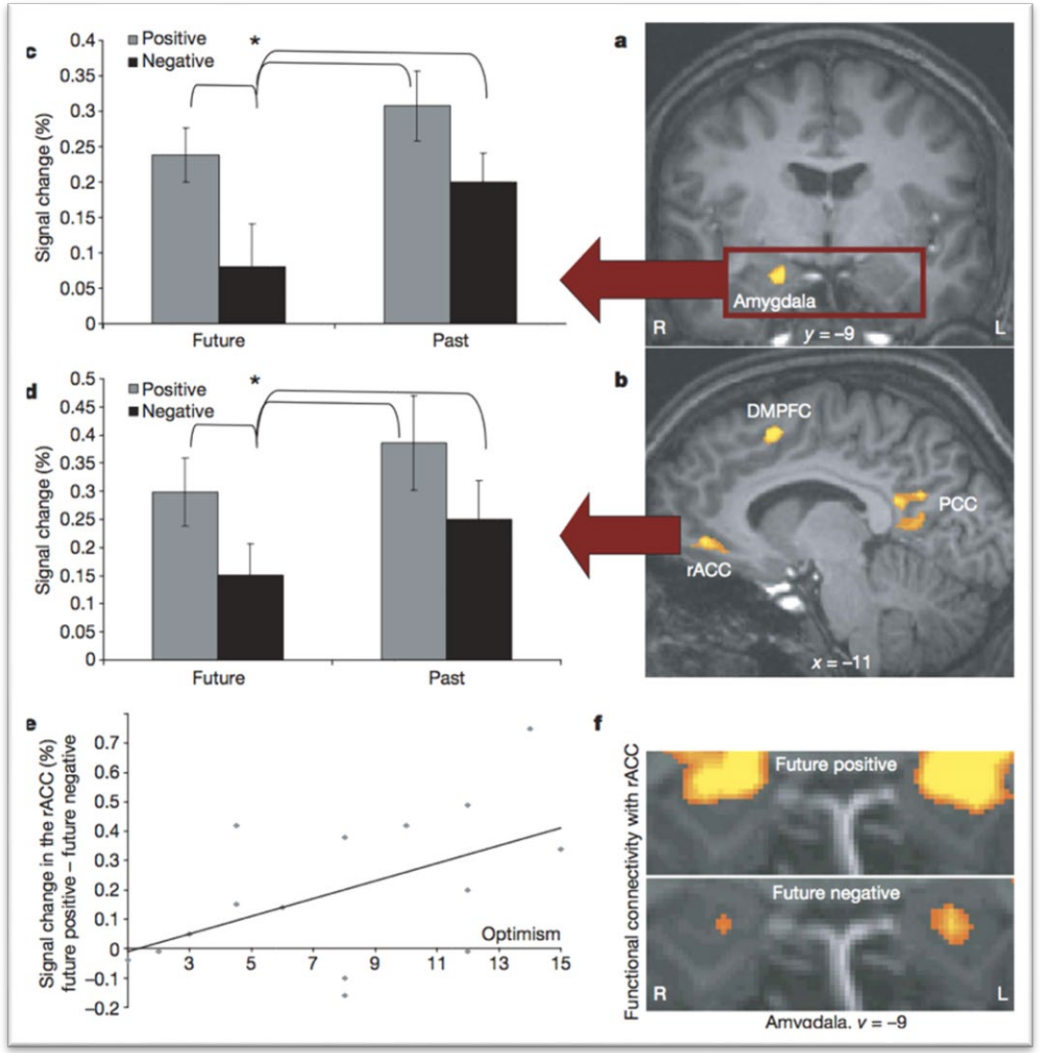
speaking on the tendency of humans to erroneously think that everything they know represents all there is to know, keeping them biased from pursuing further knowledge

Your Brain on Time Pressure



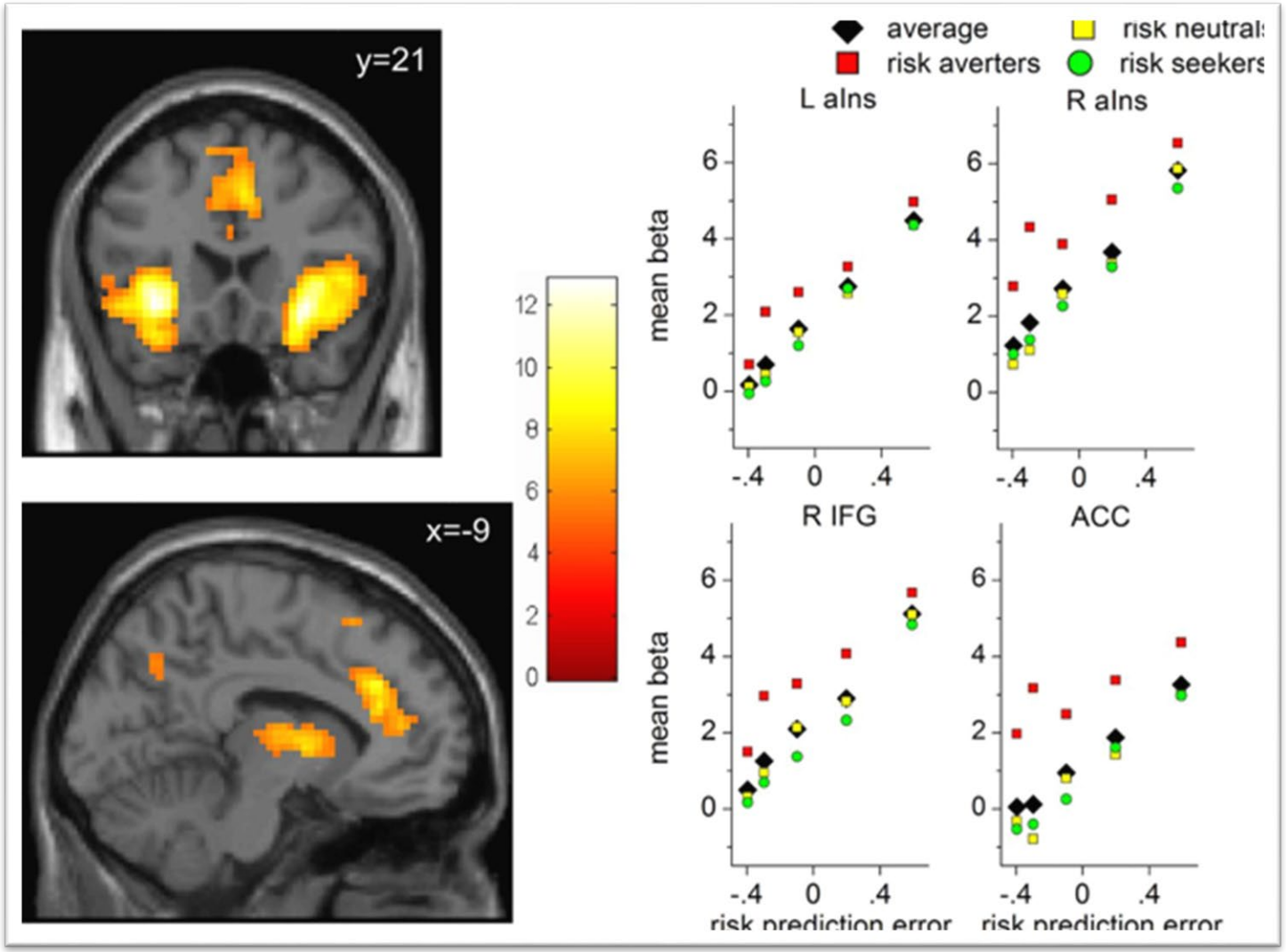
Project Management and Safety ***Meets Behavioral and Neuroscience!***

Your Brain on Optimism Bias



Project Management and Safety ***Meets Behavioral and Neuroscience!***

Your Brain on Risk



Project Management and Safety ***Meets Behavioral and Neuroscience!***

Overview

- Introduction to Environmental Factors
- Blending Safety Culture with Environmental Factors
- Using behavioral science with both
- Some application of the concepts to real world
- Paths forward

Safety Culture Focus Areas and Associated Attributes

Experience from the commercial nuclear industry, including the Institute for Nuclear Power Operations, has been reviewed for relevant lessons. An analysis of this experience and research over the past decade has identified supplemental safety culture elements that may be helpful to focus attention and action in the right areas to create the desired ISM environments. These elements also promote a shift from mere compliance toward excellence. They emphasize continuous improvement and long-term performance, and they are entirely consistent with the original intents of ISM.

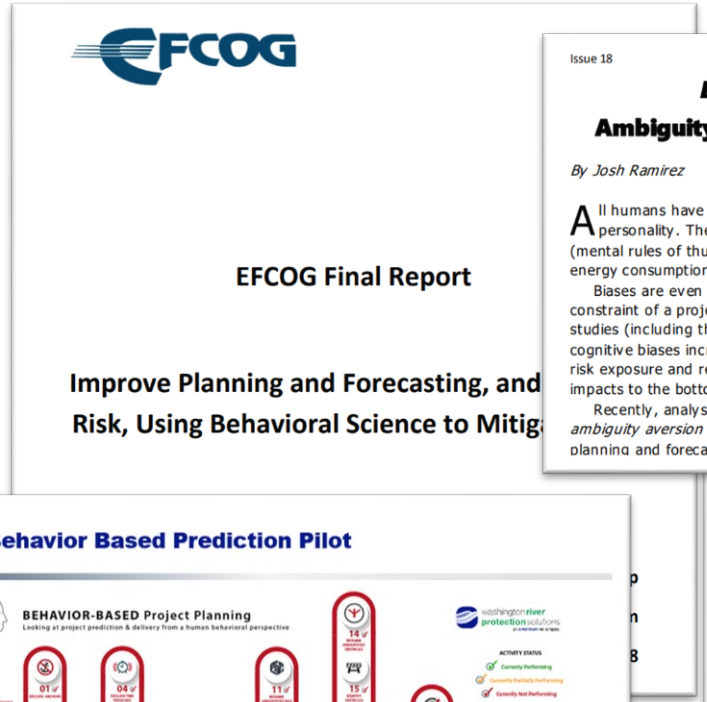
DOE and the Energy Facility Contractors Group (EFCOG) have collaborated to develop guidance for achieving a strong safety culture. They identified the following three safety culture focus areas and several attributes associated with each one, that they felt offered the greatest potential for achieving excellence in both safety and production performance.

- Leadership
  - Demonstrated safety leadership
  - Risk-informed, conservative decision making
  - Management engagement and time in field
  - Staff recruitment, selection, retention, and development
  - Open communication and fostering an environment free from retribution
  - Clear expectations and accountability

- Employee/Worker Engagement
  - Personal commitment to everyone's safety
  - Teamwork and mutual respect
  - Participation in work planning and improvement
  - Mindful of hazards and controls

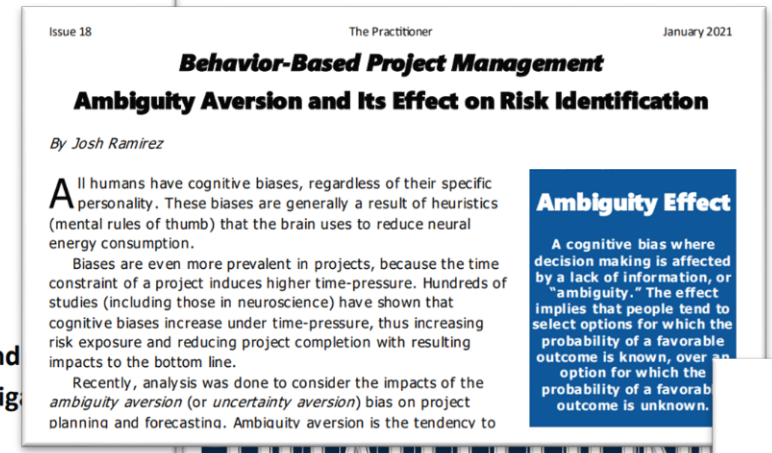
- Organizational Learning
  - Credibility, trust and reporting errors and problems
  - Effective resolution of reported problems
  - Performance monitoring through multiple means
  - Use of operational experience
  - Questioning attitude

Bringing Behavioral Science to Project Management


EFCOG

EFCOG Final Report

Improve Planning and Forecasting, and
Risk, Using Behavioral Science to Mitig


Issue 18 The Practitioner January 2021

Behavior-Based Project Management

Ambiguity Aversion and Its Effect on Risk Identification

By Josh Ramirez

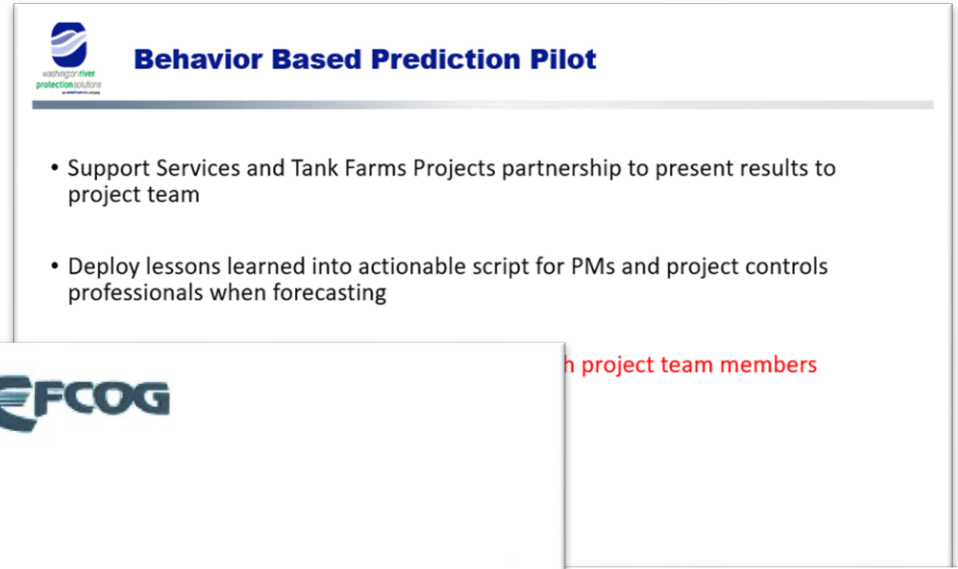
All humans have cognitive biases, regardless of their specific personality. These biases are generally a result of heuristics (mental rules of thumb) that the brain uses to reduce neural energy consumption.

Biases are even more prevalent in projects, because the time constraint of a project induces higher time-pressure. Hundreds of studies (including those in neuroscience) have shown that cognitive biases increase under time-pressure, thus increasing risk exposure and reducing project completion with resulting impacts to the bottom line.

Recently, analysis was done to consider the impacts of the *ambiguity aversion* (or *uncertainty aversion*) bias on project planning and forecasting. Ambiguity aversion is the tendency to

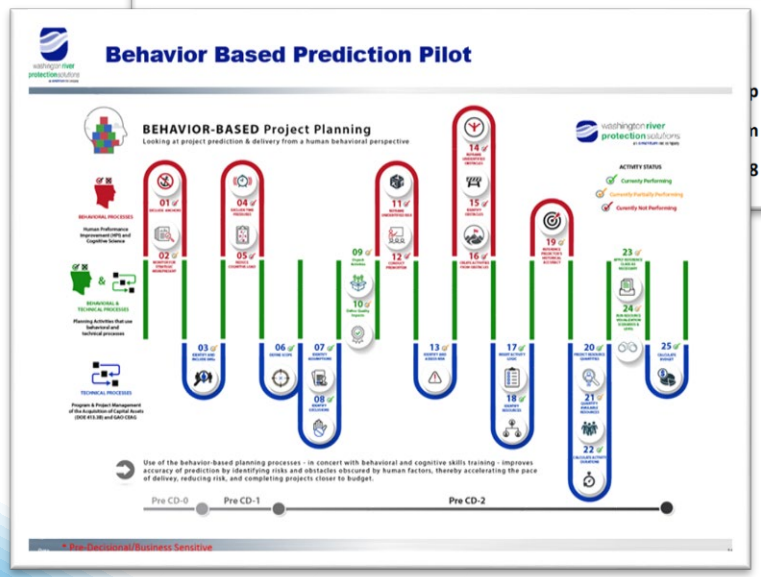
Ambiguity Effect

A cognitive bias where decision making is affected by a lack of information, or "ambiguity." The effect implies that people tend to select options for which the probability of a favorable outcome is known, over an option for which the probability of a favorab outcome is unknown.


Behavior Based Prediction Pilot

- Support Services and Tank Farms Projects partnership to present results to project team
- Deploy lessons learned into actionable script for PMs and project controls professionals when forecasting

h project team members


Behavior Based Prediction Pilot

BEHAVIOR-BASED Project Planning

Looking at project prediction & delivery from a human behavioral perspective

Use of the behavior-based planning processes - in concert with behavioral and cognitive skills training - improves accuracy of prediction by identifying risks and obstacles obscured by human factors, thereby accelerating the pace of delivery, reducing risk, and completing projects closer to budget.

Pre CD-0 Pre CD-1 Pre CD-2

* Pre-Decisional/Business Sensitive


PRACTITIONER

A monthly newsletter of the Energy Facility Contractors Group's Project Delivery

Issue 24

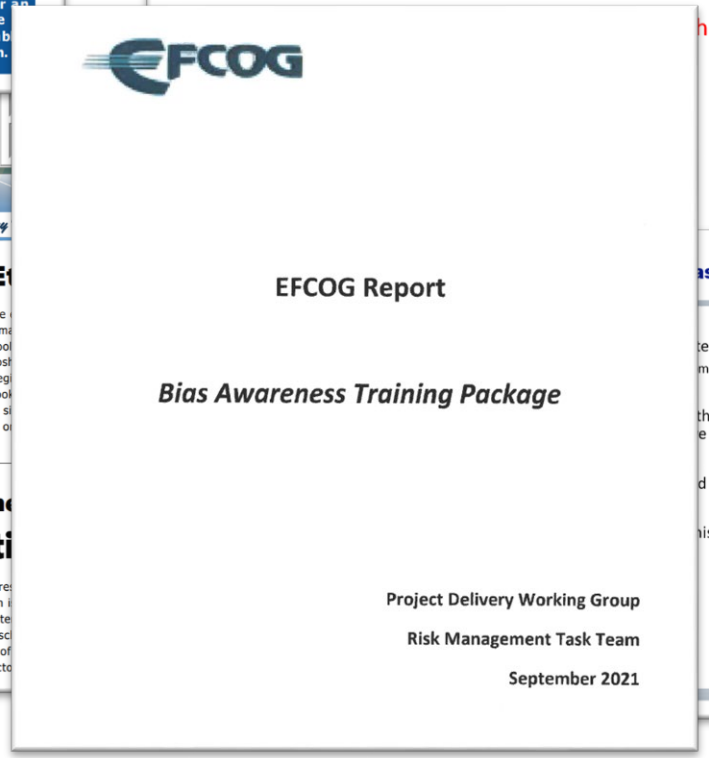
'Play it Cool' When it Comes to E

Greetings, PDWG members! Now that the dog days of summer are here, we hope staying cool in the parts of the country that are experiencing warmer than norma temperatures. Along those lines, this month's edition of the *Practitioner* "plays it cool exploring the realm of ethics from two different viewpoints. Frequent contributor Josh recently minted Ph.D. in project management, provides a brief description of strategi misrepresentation as it relates to behavior-based project management. Then, we look major engineering disasters that were caused in part by a lack of proper ethics. So si a tall cool one and scroll through the next few pages to see if your ethics are cool, o little warmer than they should be.

Behavioral-Based Project Manageme

Strategic Misrepresentati

Strategic Misrepresentation is a behavioral phenomenon associated with social pres incentives to estimate projects outside of realistic predictions. The phenomenon scribed by Jones and Euske (1991) as the "planned, systematic distortion or misstate – lying – in response to incentives in the budget process." Flyvbjerg (2008) is one sc has studied strategic misrepresentation quite extensively, showing many examples of that have gone significantly over schedule and budget as a result of this human facto


EFCOG

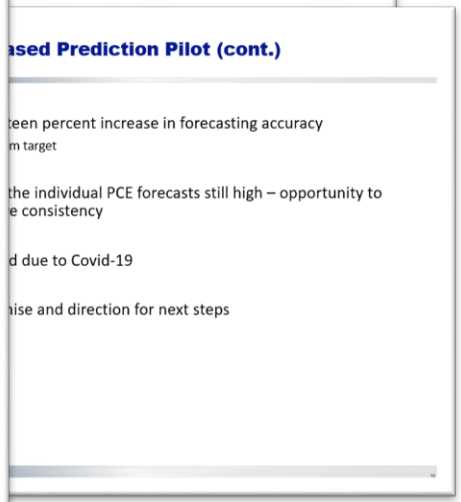
EFCOG Report

Bias Awareness Training Package

Project Delivery Working Group

Risk Management Task Team

September 2021


ased Prediction Pilot (cont.)

teen percent increase in forecasting accuracy
m target

the individual PCE forecasts still high – opportunity to
e consistency

d due to Covid-19

ise and direction for next steps

Project Management and Safety ***Meets Behavioral and Neuroscience!***

The DOE Project Management Study and Behavior

ENERGY.GOV | Leadership | Energy.gov Offices | National Labs | Search Energy.gov

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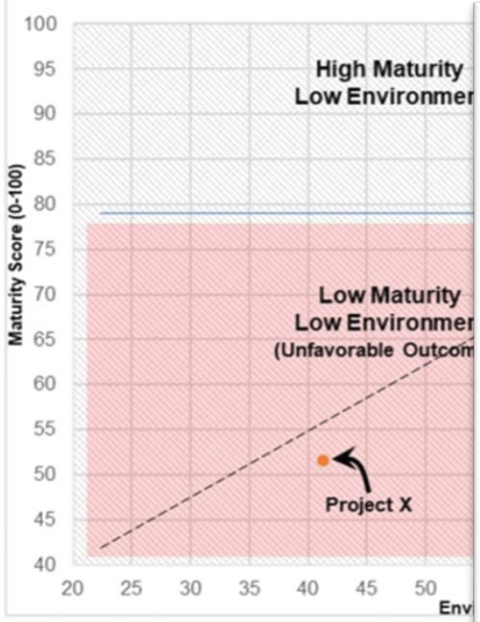
Office of Project Management

IP2M METRR (ASU EVMS Study)

Figure 1. Why the Environment Matters

WHY THE ENVIRONMENT MATTERS



Promoting Project Management Excellence, M

EVMS Environment Assessment

EVMS Environment Score Sheets

1. **Culture** *Culture is, by definition, the display of behaviors. Organizational culture is a system of common assumptions, values and beliefs (or the lack thereof) that governs how people behave in organizations. Organizational values and beliefs should align with the development and outcomes of a successful EVMS. The project/program culture can enable or hinder the effectiveness of the EVMS.*					
Factors for Review	*Not Acceptable*	*Needs Improvement*	*Meets Some*	*Meets Most*	*High Performing*
1a. The **contractor organization is supportive and committed** to EVMS implementation, including making the necessary investments for regular maintenance and self-governance.					
1b. The **customer organization is supportive and committed** to the implementation and use of EVMS.					
1c. The project/program **culture fosters trust, honesty, transparency, communication, and shared values** across functions.					
1d. **Effective teamwork exists** and team members are working synergistically toward common project/program goals.					
1e. The project/program **leadership effectively manages and controls change** using EVMS, including corrective actions and continuous improvement.					
1f. **Alignment and cohesion exist among key team members** who implement and execute EVMS, including common objectives and priorities.					
1g. Project/program leaders make **timely and transparent decisions** informed by the EVMS.					
Column Totals (For Culture)*	…	…	…	…	…
*frequency number in column					

Integrated Project/Program Management (IP2M)

Maturity and Environment Total Risk Rating (METRR)

…g EVMS

…d Value Management System (EVMS)

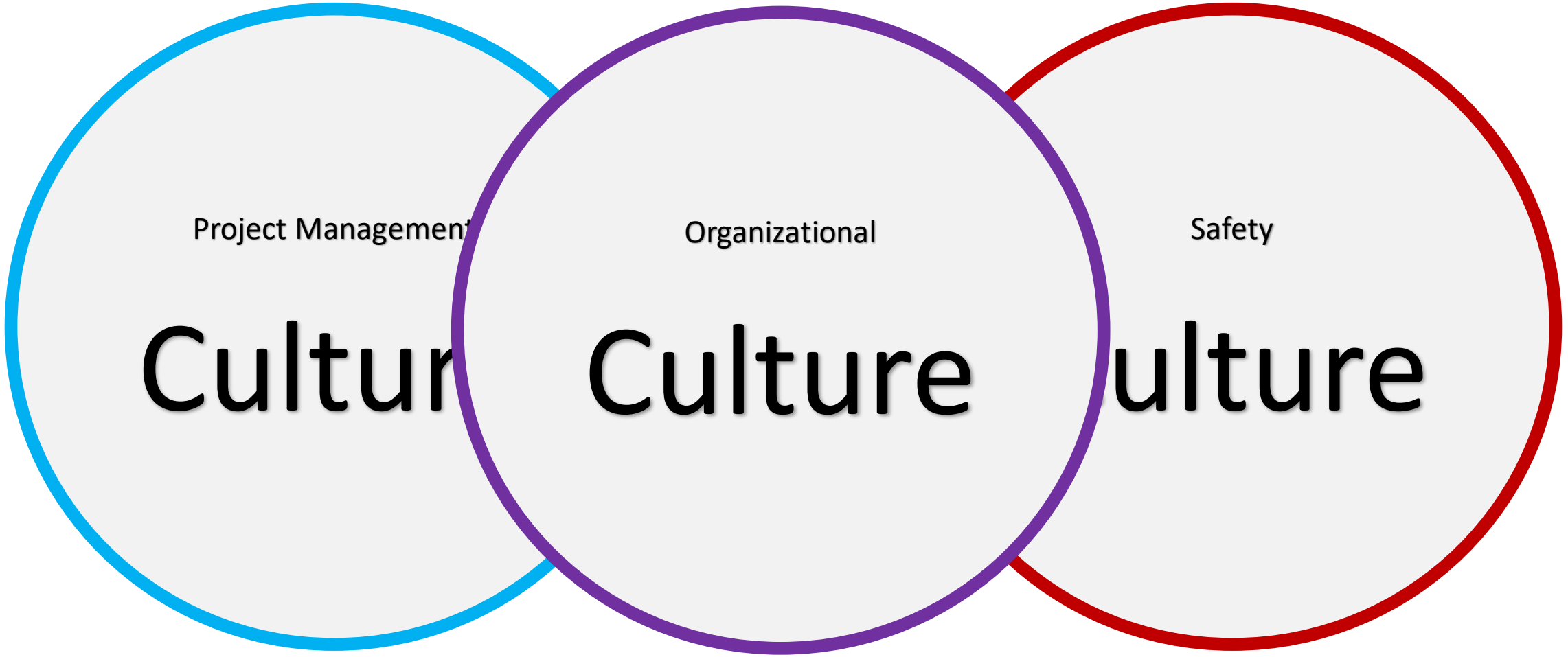
…nent Total Rating (METR)]

…d Research Project: *Improving the Maturity and …ystems (EVMS) – Development of an EVMS Rating …Index*

…BER 1, 2021

Project Management and Safety ***Meets Behavioral and Neuroscience!***

Why is This Important?



Project Management and Safety ***Meets Behavioral and Neuroscience!***

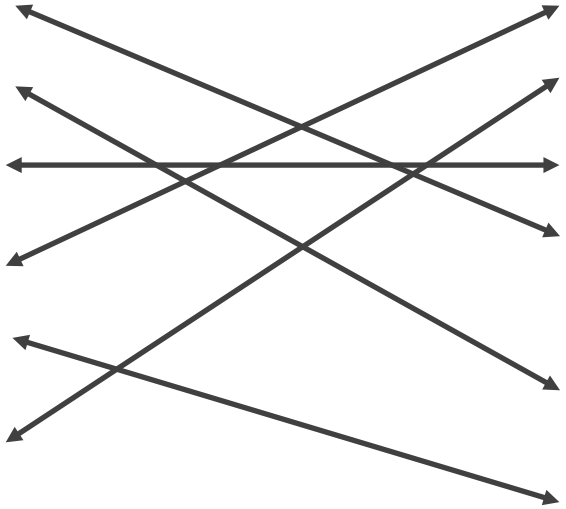
80% of Errors are Due to Human Behavior

Join Camps on Common Concepts

Environmental Factors

- Leadership effectively manages
- Culture fosters trust
- Effective teamwork exists
- Timely and transparent decisions
- Customer organization is committed
- Fosters communication

Joint Concepts

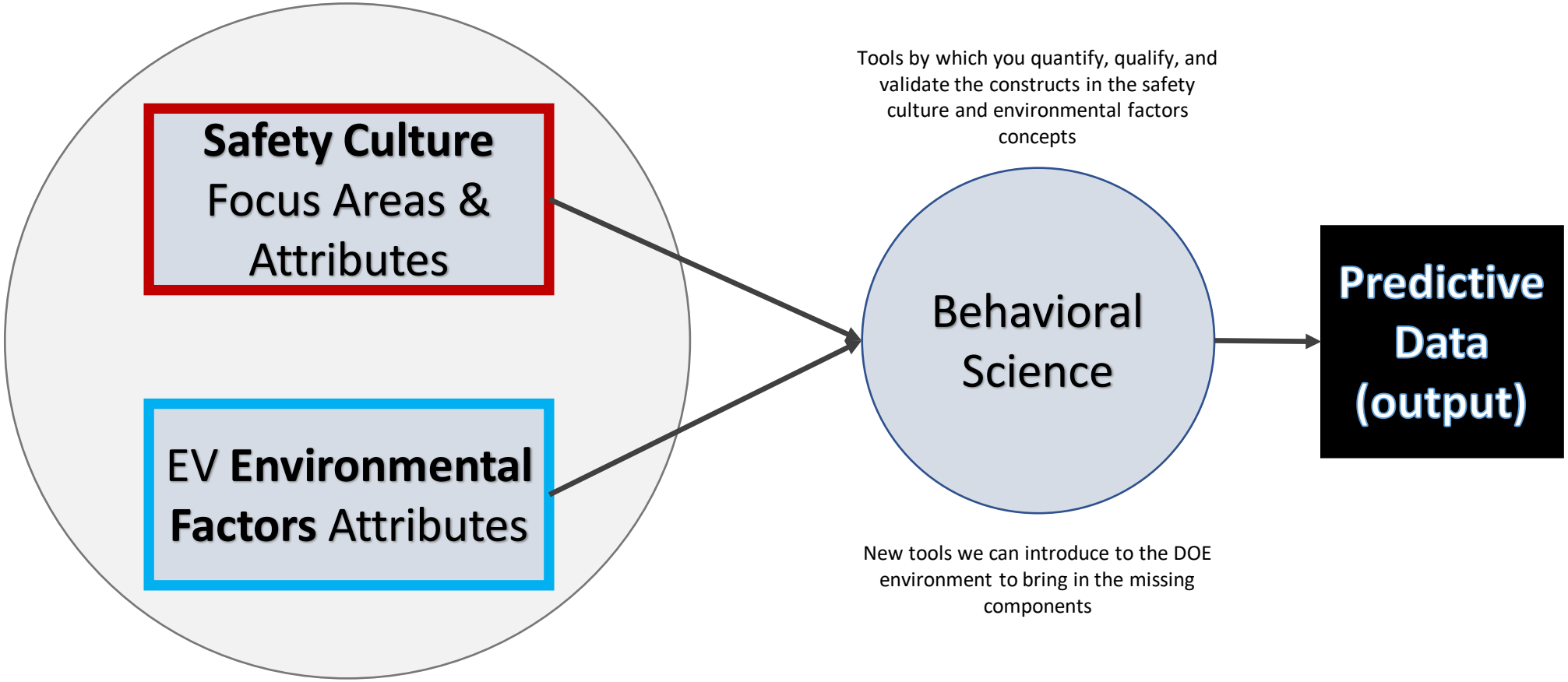


Safety Culture

- Risk-informed decision-making
- Open communication
- Teamwork and mutual respect
- Management engagement and time in field
- Credibility, trust and reporting errors and problems
- Personal commitment to everyone's safety

Joint Concepts Through Behavioral Science

Joint Concepts

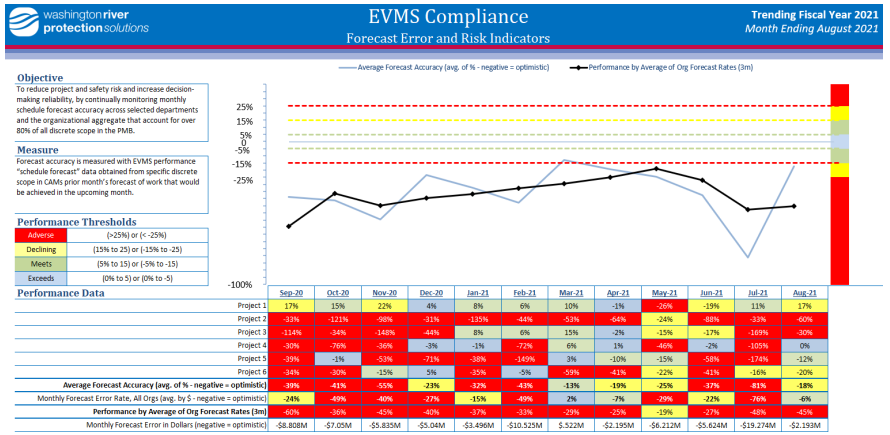


Applying Behavioral Science!

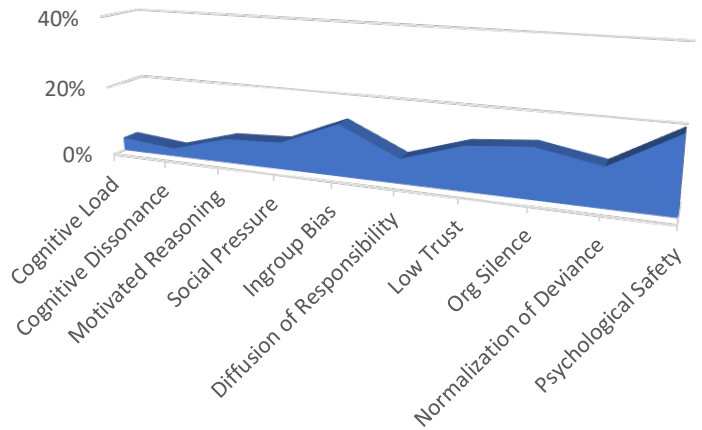
Multiple Indicators Across the Culture

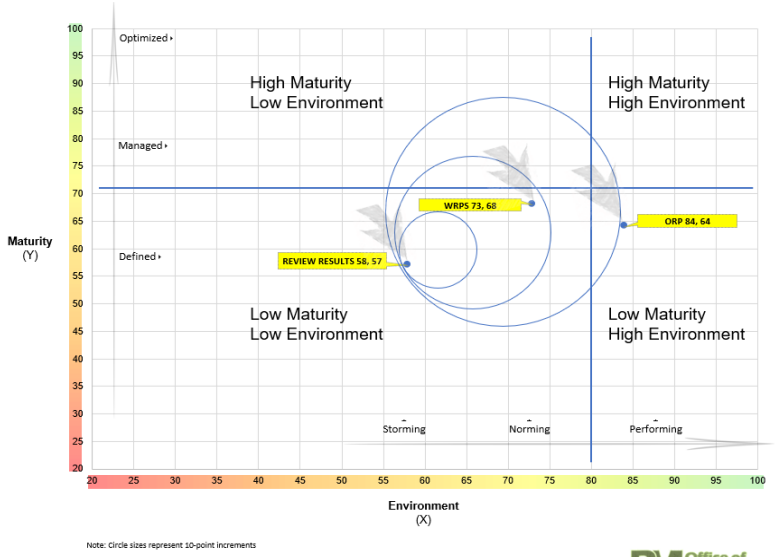
1. **Culture**
Culture is, by definition, the display of behaviors. Organizational culture is a system of common assumptions, values, and beliefs (or the lack thereof), which govems how people behave in organizations. Organizational values and beliefs should align with the development and outcomes of a successful EVMS. The project/program culture can enable or hinder the effectiveness of the EVMS.

Factors for Review	❶ Not Acceptable	❷ Needs Improvement	❸ Meets Some	❹ Meets Most	❺ High Performing
1a. The **contractor organization is supportive and committed** to EVMS implementation, including making the necessary investments for regular maintenance and self-governance.		**2.77**			
1b. The **customer organization is supportive and committed** to the implementation of EVMS.		**2.56**			
1c. The project/program **culture fosters trust, honesty, transparency, communication, and shared values** across functions.		**2.90**			
1d. **Effective teamwork exists,** and synergistic team members are working toward a common goal.		**2.88**			
1e. The project/program **leadership effectively manages change** using EVMS, including corrective actions and continuous improvement.		**2.87**			
1f. **Alignment and cohesion exist among key team members** who implement and execute EVMS, including common objectives and priorities.		**2.85**			
1g. Project/program leaders make **timely and transparent decisions** informed by the EVMS.		**2.53**			
Subtotal for Culture		**2.69**			



Behavioral Indicators in DOE Surveillance Notes from Environmental Factors Interviews

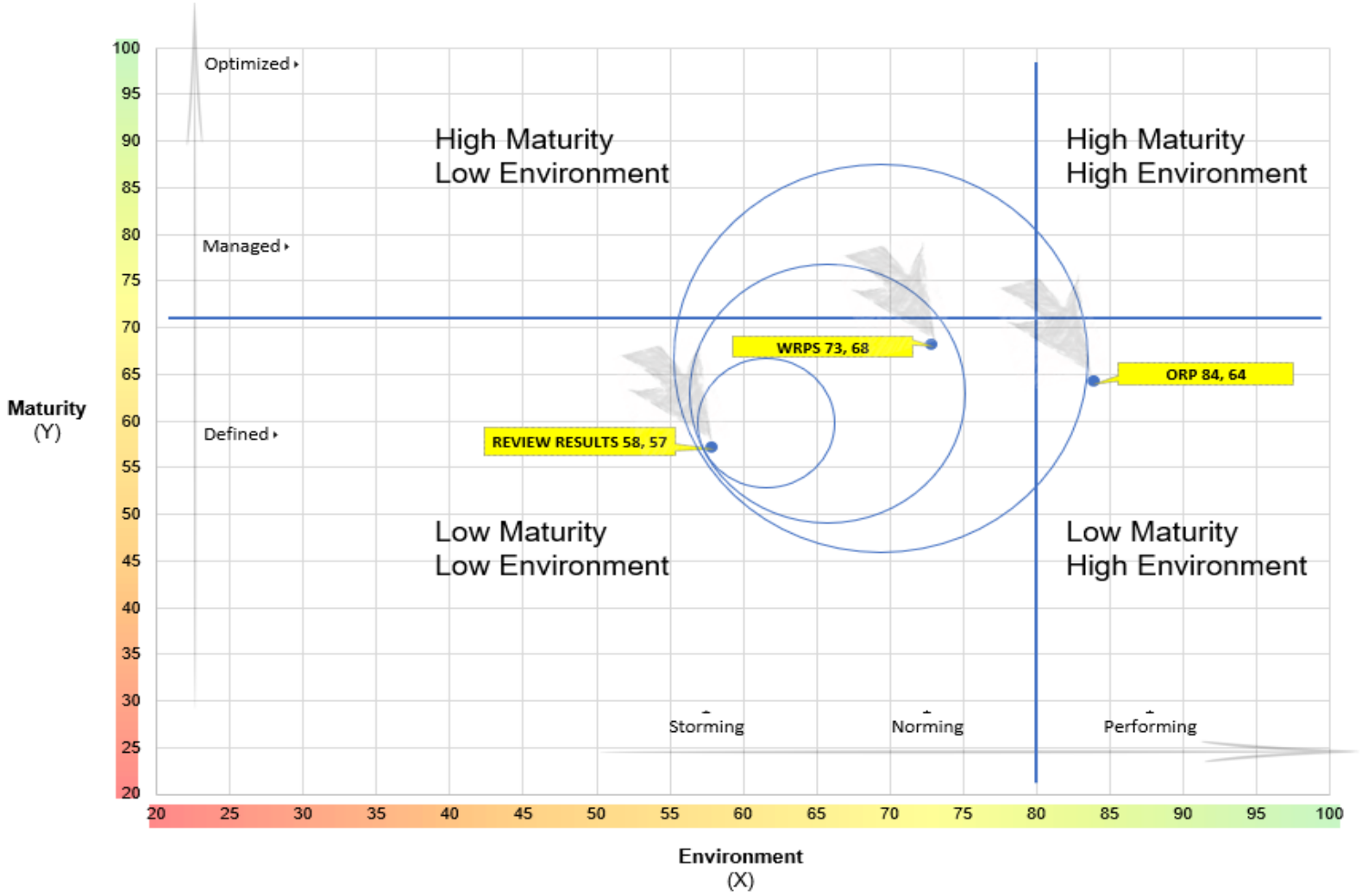




Office of Project Management

Project Management and Safety ***Meets Behavioral and Neuroscience!***

DOE's Surveillance Revealed Low EF Maturity



Note: Circle sizes represent 10-point increments

Office of Project Management

The Forecast is an Indicator of Behavior

EVMS Compliance

Forecast Error and Risk Indicators

Trending Fiscal Year 2021
Month Ending August 2021

Objective

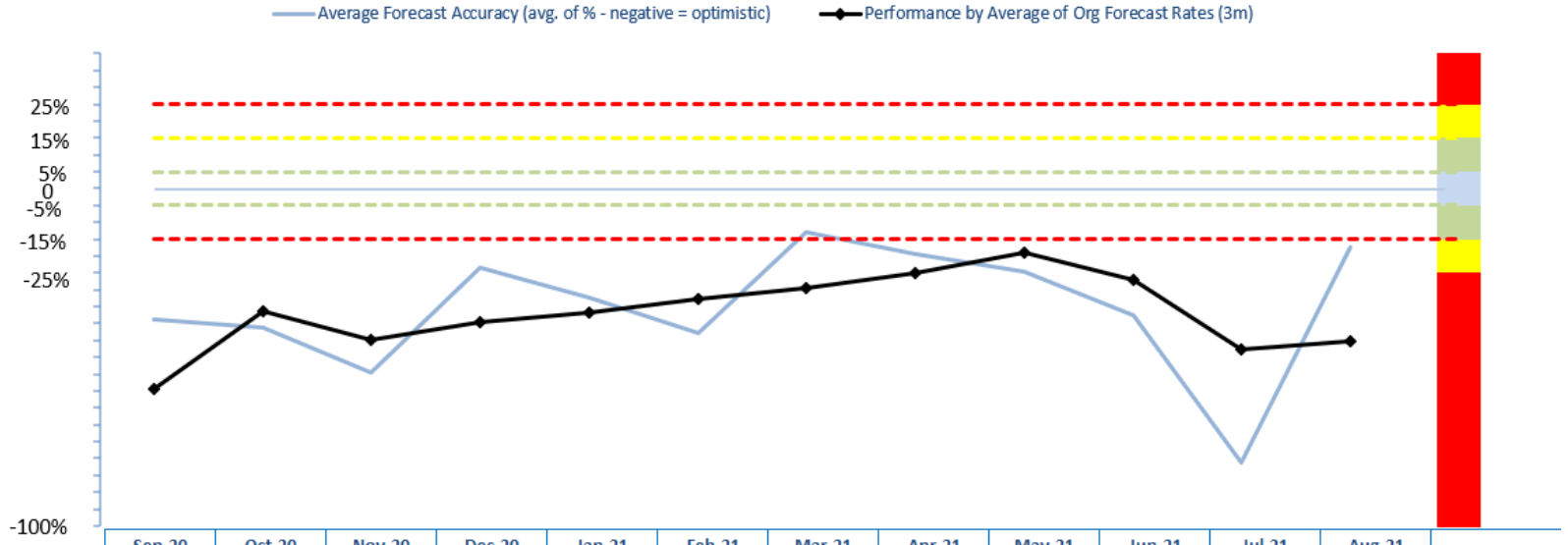
To reduce project and safety risk and increase decision-making reliability, by continually monitoring monthly schedule forecast accuracy across selected departments and the organizational aggregate that account for over 80% of all discrete scope in the PMB.

Measure

Forecast accuracy is measured with EVMS performance "schedule forecast" data obtained from specific discrete scope in CAMs prior month's forecast of work that would be achieved in the upcoming month.

Performance Thresholds

Adverse	(>25%) or (< -25%)
Declining	(15% to 25) or (-15% to -25)
Meets	(5% to 15) or (-5% to -15)
Exceeds	(0% to 5) or (0% to -5)

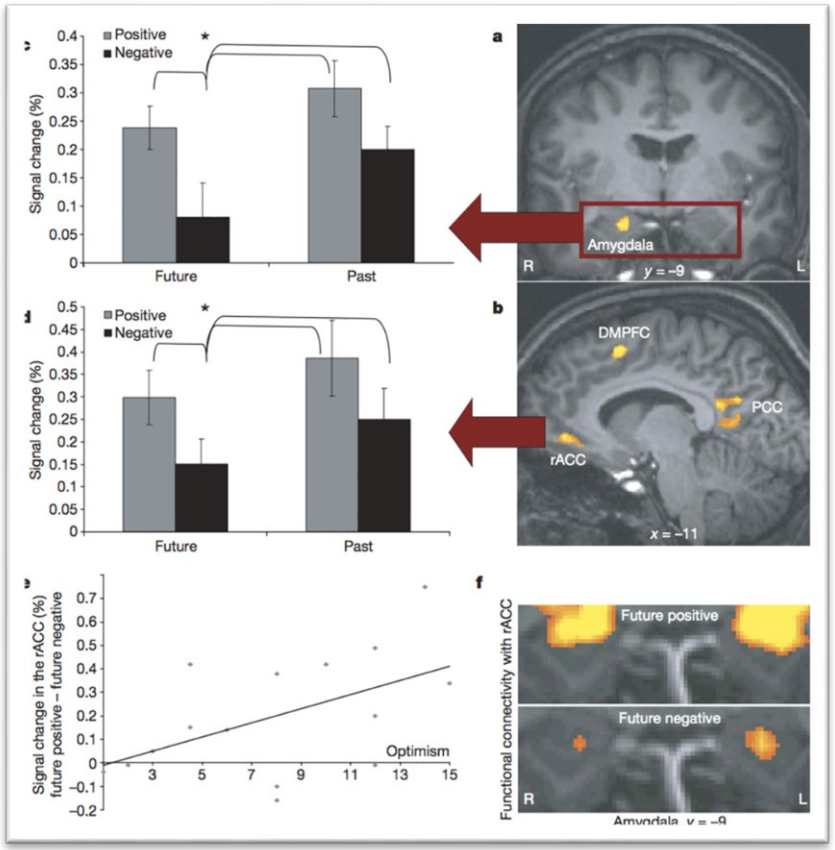


Performance Data

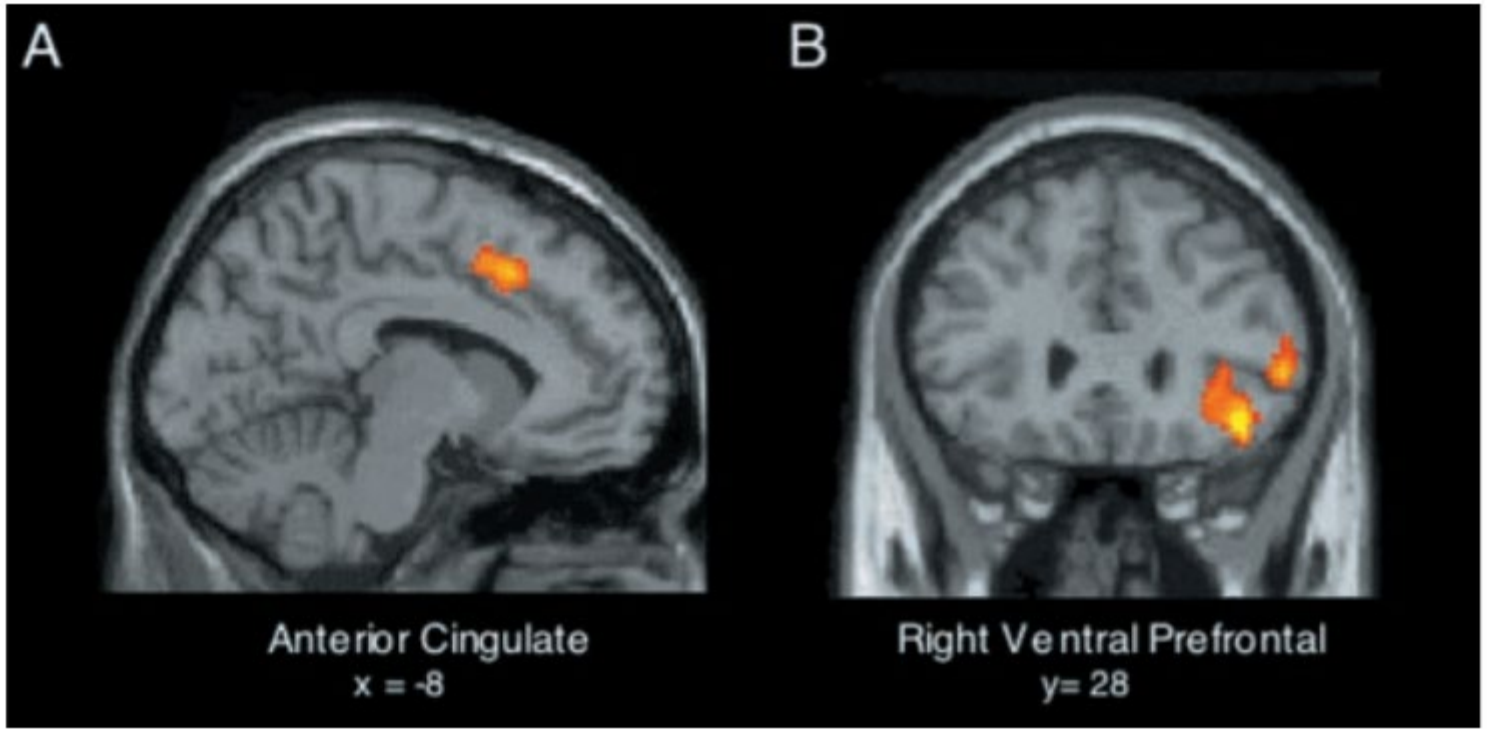
	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21
Project 1	17%	15%	22%	4%	8%	6%	10%	-1%	-26%	-19%	11%	17%
Project 2	-33%	-121%	-98%	-31%	-135%	-44%	-53%	-64%	-24%	-88%	-33%	-60%
Project 3	-114%	-34%	-148%	-44%	8%	6%	15%	-2%	-15%	-17%	-169%	-30%
Project 4	-30%	-76%	-36%	-3%	-1%	-72%	6%	1%	-46%	-2%	-105%	0%
Project 5	-39%	-1%	-53%	-71%	-38%	-149%	3%	-10%	-15%	-58%	-174%	-12%
Project 6	-34%	-30%	-15%	5%	-35%	-5%	-59%	-41%	-22%	-41%	-16%	-20%
Average Forecast Accuracy (avg. of % - negative = optimistic)	**-39%**	**-41%**	**-55%**	**-23%**	**-32%**	**-43%**	**-13%**	**-19%**	**-25%**	**-37%**	**-81%**	**-18%**
Monthly Forecast Error Rate, All Orgs (avg. by $ - negative = optimistic)	**-24%**	**-49%**	**-40%**	**-27%**	**-15%**	**-49%**	**2%**	**-7%**	**-29%**	**-22%**	**-76%**	**-6%**
Performance by Average of Org Forecast Rates (3m)	-60%	-36%	-45%	-40%	-37%	-33%	-29%	-25%	-19%	-27%	-48%	-45%
Monthly Forecast Error in Dollars (negative = optimistic)	-$8.808M	-$7.05M	-$5.835M	-$5.04M	-$3.496M	-$10.525M	$.522M	-$2.195M	-$6.212M	-$5.624M	-$19.274M	-$2.193M

Project Management and Safety ***Meets Behavioral and Neuroscience!***

Remember the Optimism Bias Brain Scan?

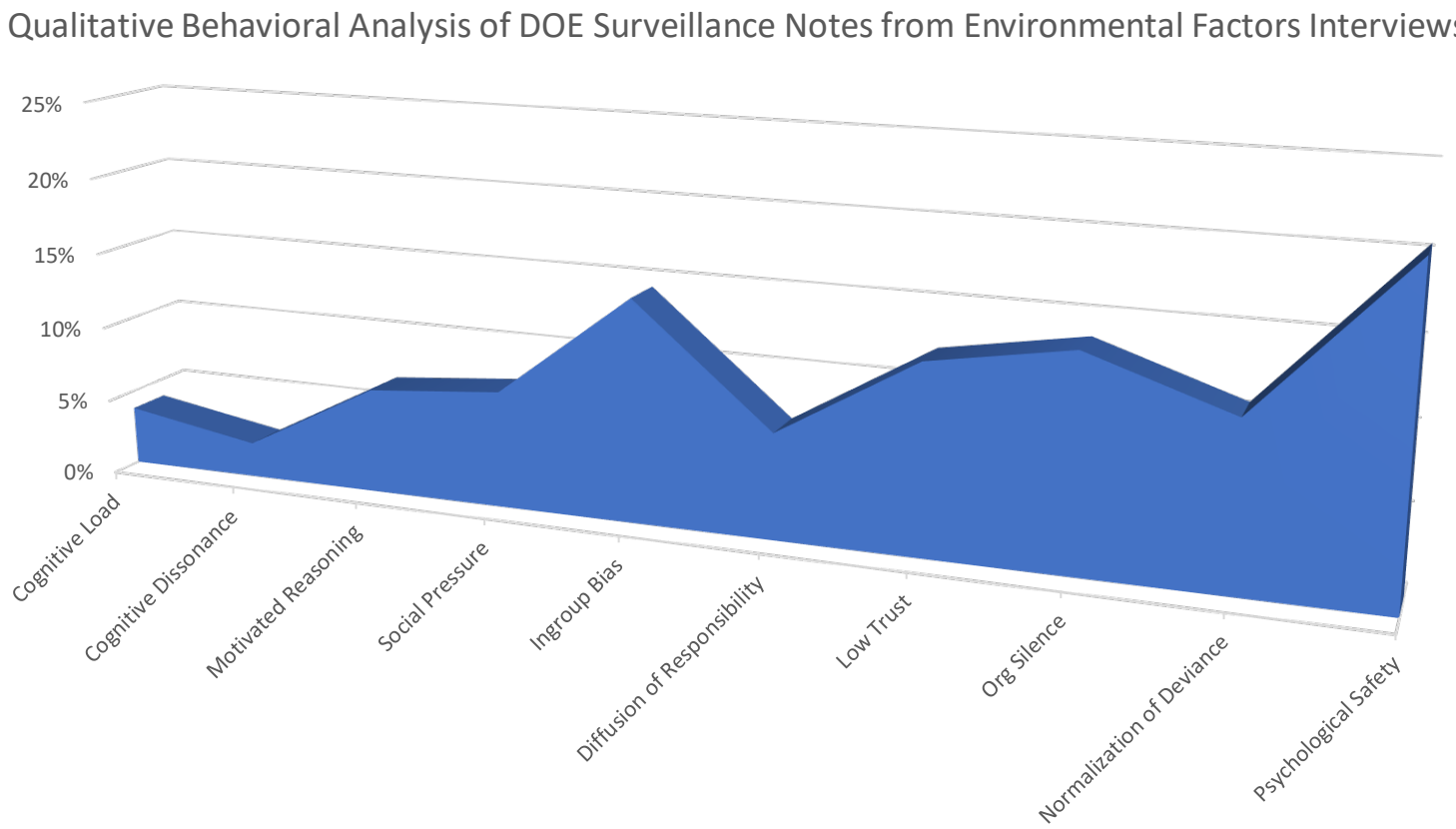


Social Pressure on the Brain



Is There More to the Schedule Forecast

Internal Analysis Indicated Similar Results



Top Trending Behavioral Factors

- Dissonance Avoidance Biases
- Strategic Misrepresentation
- Organizational Silence
- Normalization of Deviance
- Ingroup Bias
- Low Psychological Safety
- Low Trust

No More Guessing!

Table 6 **Classification of Investors by Perceived Risk Attitudes in Success and Failure Session**

(a) Classification scheme 1

Perceived Risk Attitude in Success Session	Perceived Risk Attitude in Failure Session: Averse	Neutral	Seeking	
Averse	**10**	3	0	13
Neutral	1	**5**	1	7
Seeking	0	0	**4**	4
	11	8	5	24

Same classification in both domains ⇒ 19/24 = 79%

(b) Classification scheme 2

Perceived Risk Attitude in Success Session	Perceived Risk Attitude in Failure Session: Averse	Seeking	
Averse	**15**	2	17
Seeking	2	**5**	7
	17	7	24

Same classification in both domains ⇒ 20/24 = 83%

Note. Boldfaced entries show investors who have the same attitude in both sessions.

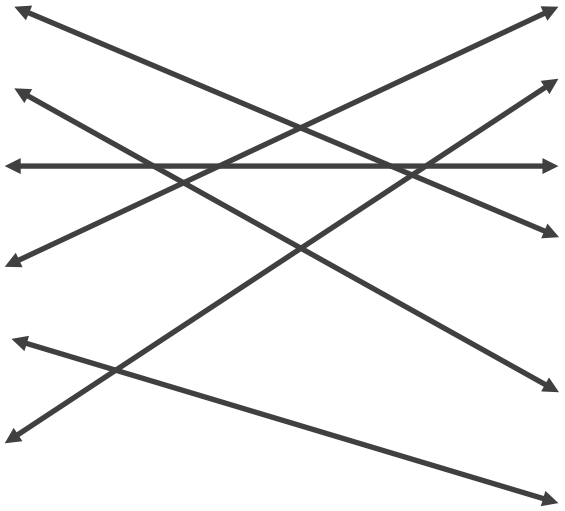
ferences in risk perception out of risky choice would show greater stability across situations than the traditional definition of risk attitudes in the EU framework or in Dyer and Sarin's (1982) relative risk attitude framework. Defining risk preference as the tendency to be attracted or repelled by alternatives that are perceived as risky, we found support for our hypothesis that risk preference may be a stable personality trait, and that the effect of situational variables on choice may be the result of changes in risk perception. Our results are consistent with those of Sitkin and Weingart (1995) who found that a mediated effects model in which risk perception mediated the effects of situational characteristics on risky decision making behavior explained those effects better than a direct effects model.

As a note of caution, the studies reported in this paper were not designed to establish any causal connection between risk perception, risk preference, and choice. Thus no claim is made that participants decided by determining the relative riskiness of alternatives and then chose according to their risk preference. We only tested the weaker hypothesis that the factors that change and affect choice also affect risk perception and that inherent risk preference may thus be a constant for a given individual. The possibility that changes in choice and in risk perception may be related has also been raised by recent work on risk-return decompositions of utility functions (Bell 1995, Jia and Dyer 1994) where different utility functions are shown to be consistent with different measures of risk. Our results support the prediction of risk-return or

The Joint Concepts Have Attributes

Environmental Factors

- Leadership effectively manages
- Culture fosters trust
- Effective teamwork exists
- Timely and transparent decisions
- Customer organization is committed
- Fosters communication



Safety Culture

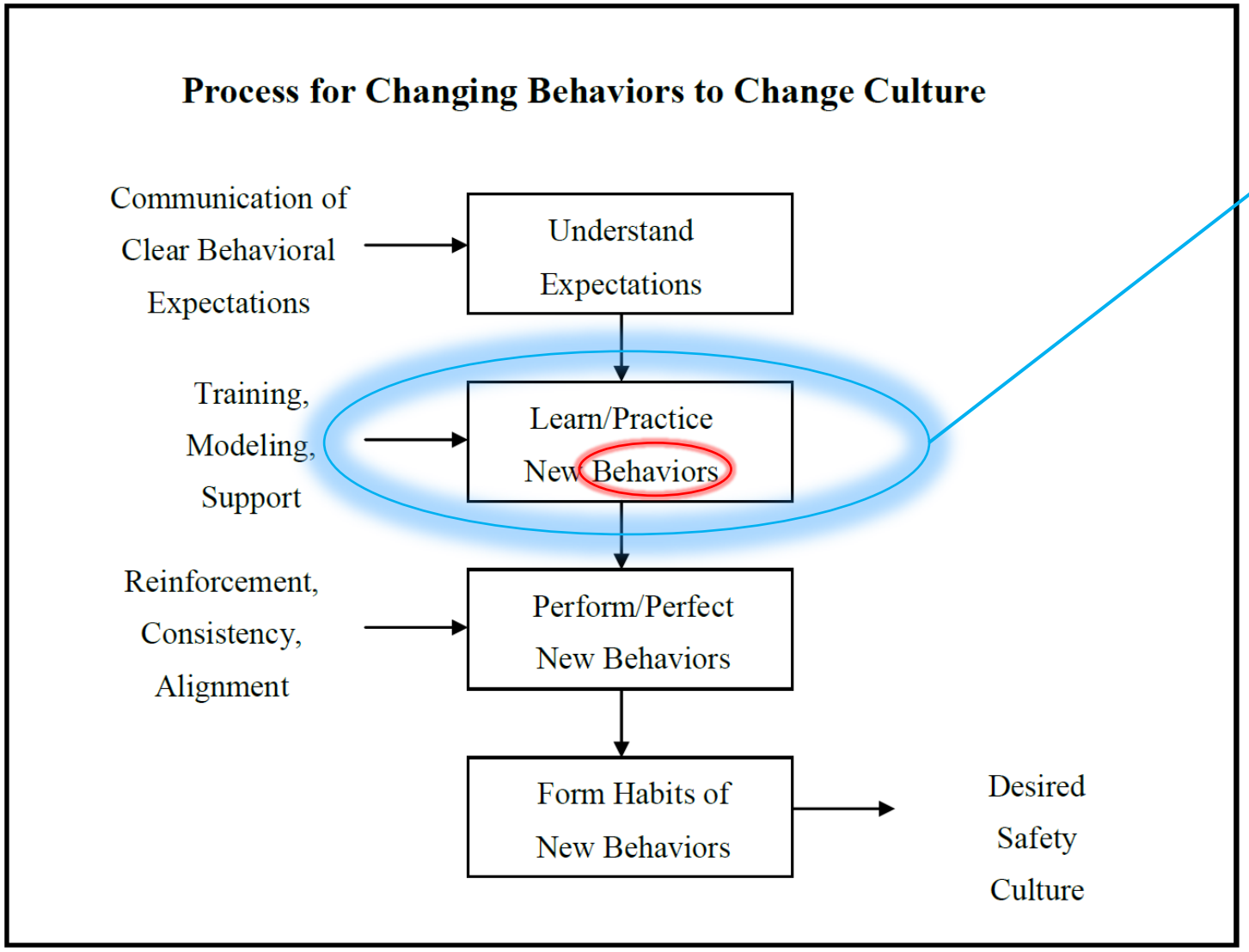
- Risk-informed decision-making
- Open communication
- Teamwork and mutual respect
- Management engagement and time in field
- Credibility, trust and reporting errors and problems
- Personal commitment to everyone's safety

We say "*conservative decision-making*," but what's our measure?

We say "*trust*," but how do we measure that?

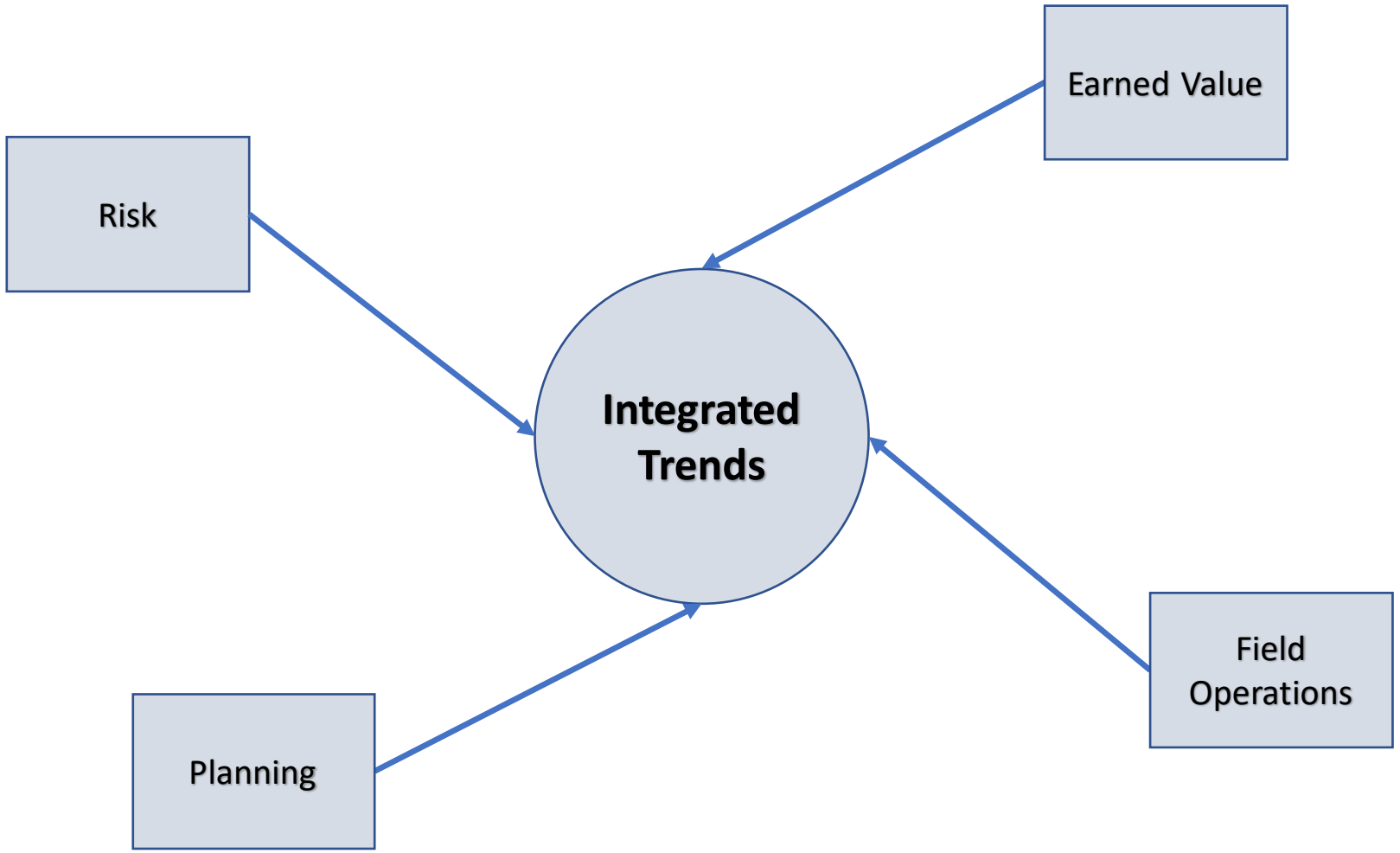
We say "*leadership*," but how do we demonstrate it's happening?

We say "*mutual respect*," but how do we know that's occurring?



- Based on what analysis?
- Did we have a behavioral expert measure it?
- Did we have a valid behavioral instrument?
- Do we actually know what the problem is?
- Have we formulated a valid solution?

Indicators from Various Departments



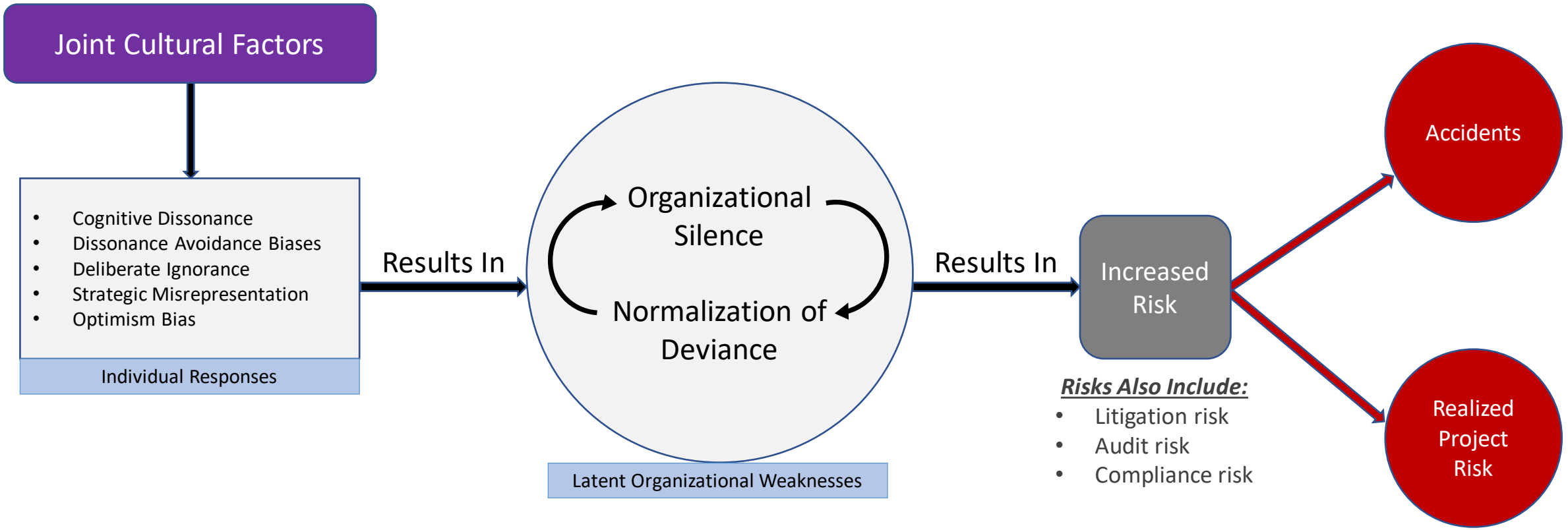
Back to the Schedule Forecast in Project Management

- Strategic misrepresentation
- Overconfidence
- Optimism bias
- Time pressure
- High cognitive load

How do These Relate to Safety?

- **Strategic misrepresentation** = potential low trust or fear of management, with higher probability safety risk won't be brought up
- **Overconfidence** = higher probability someone will take more safety risks
- **Optimism bias** = higher probability safety risk will be ignored
- **Time pressure** = higher probability a safety risk will get missed
- **High cognitive load** = higher probability a safety risk won't be seen

Behavior Can Lead to Project and Safety Risk



Project Management and Safety ***Meets Behavioral and Neuroscience!***

Become More Predictive

- Psychological metrics can measure issues before they occur elsewhere
- We can use both qualitative and quantitative measures of behavior
- Incident/accident data looks backwards, and fixes problems after it's too late
- Psychological metrics and other qualitative measures look at the organizational behavior as it currently stands, enabling a predictive look at what might be brewing, with a potential of catching problems before they become accidents

Compliance Applications

- Unless Project Management, Safety, and Quality are fully integrated in "what" they are seeing in terms of belief-based/individual interpretation related non-compliance, the magnitude of the cultural environmental factor may be significantly misunderstood and understated with respect to potential undesired events and accident risks
- "WRPS implements the Integrated Safety Management System (ISMS) by systematically integrating safety into management and work practices at all levels, so that missions are accomplished efficiently while protecting the workers, the public, and the environment. Simply put, ISMS means to 'Do Work Safely.'" **…and compliantly!**

Multidisciplinary Integrated Safety Technology

- Use multiple indicators that are available in the organization
- Enable safety organizations to look beyond their own department
- Put human behavior at the center of everything – everything starts with the brain
- Measure human behavior with all available tools and psychological metrics
- Use the qualitative and quantitative data to predict trends before they become accidents

Recommendations

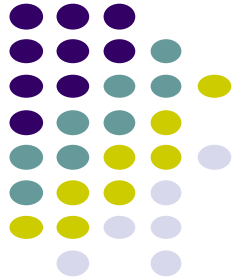
- Initiate a triangulation of environmental factors related to compliance adherence in Project Management, Safety, and Quality Assurance
- Begin addressing errors using behavioral and other human factor diagnostic tools and methods to mitigate risk using a *decision science* approach to error mitigation
- Consider consultation with organizational psychologists, behavioral economists, and other decision science experts in order to determine deep rooted causes in the organization that are causing risky choice and other error mindsets

Questions?

Break
3:15 – 3:25 pm EST, Wednesday

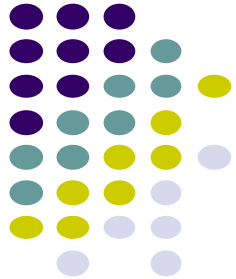
Next: Safety Culture Task Team Business

Safety Culture Task Team
2:10 – 4:30 pm EST, Wednesday



- EFCOG Overview
- Leadership Succession
- Overview of FY21 Completed Activities
  - Metrics Pilot
  - Teleworking Best Practices & Pilot
- Solicitation for Best Practice ideas
- FY22 Activity Planning
  - Guide on Safety Culture Communication & Interface
  - Best Practices Benchmarking

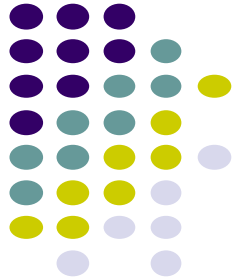
Safety Culture Task Team Overview



EFCOG's objective is to maximize Department of Energy (DOE) and National Nuclear Security Administration (NNSA) mission success by sharing best practice and information to support management and operational excellence. Ensuring safety, security and quality is the foundation for EFCOG's work.

- The Safety Culture Task Team is part of
  - Integrated Safety Management (ISM) Subgroup
    - Safety Working Group

Safety Culture Task Team Overview (Cont.)

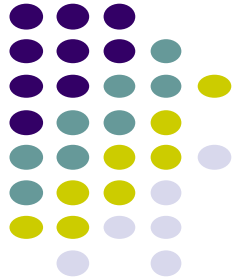


The EFCOG Safety Culture Task Team is composed of volunteer members and SMEs from various DOE prime contractor organizations.

- 2-3 Established deliverables per year
- Option to produce additional white papers and best practices

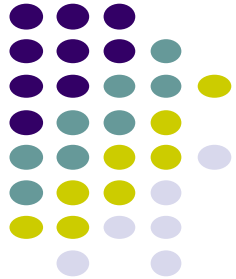
Annual actions are recommended by the group based on identified need (e.g., the Practitioner Guide was created for new Safety Culture SMEs to help address industry attrition).

Safety Culture Task Team Leadership & Succession



- Adrienne King is the current Chair
- Davyda Hammond is the Vice Chair
- The Secretary position is open - please consider volunteering for the Secretary role! Responsibilities include:
  - Website maintenance
  - Group emails
  - Maintaining contact lists and meeting attendance
- We are looking for volunteers for the Secretary and other leadership positions for succession planning!
- Please take a look at the EFCOG Safety Culture webpage and send any suggestions or recommendations!

Safety Culture Task Team Leadership & Succession (Cont.)



With retirements and contract transitions, please remember to engage new colleagues in EFCOG activities, either Safety Culture or other Working Groups and Task Teams as appropriate!

If anyone attending needs to be added to the Safety Culture Task Team distribution list, please drop a note in the chat.

Safety Culture Task Team Best Practices

In Process Best Practices:

- Survey Development and Deployment (Adrienne King & Davyda Hammond)
- Assessment Logistics (Heather McMurdo)

We're looking for Best Practice topics and suggestions!

Existing best practices on the EFCOG Safety Culture Task Team webpage will be evaluated for inclusion in OPEXSHARE (some have already been published in OPEXSHARE).

Safety Culture Task Team Accomplishments

Focus in 2020 was on monitoring and measuring:

- Revision 1 of the Guide to Monitoring and Improving Safety Culture
- Proposed Safety Culture Measures and Monitoring

Focus in 2021 was on COVID-19 and validating the monitoring and measuring guidance:

- Safety Culture Measures and Monitoring Pilot White Paper
- Safety Culture Teleworking White Paper

Safety Culture Task Team Accomplishments (Cont.)

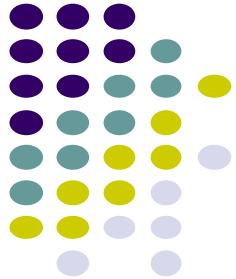
Thank you to our 2021 Team Members and Leads!

- Kristin Creed (SRNS)
- Melanie Gibson (SRR)
- Trish Hughes (ICP) (Lead)
- Cheryl MacKenzie (SNL) (Lead)
- Heather McMurdo (WTP)
- Vicki Salvo (LLNL)
- Cynthia Sandin (LANL)
- Lynn Serrato (HPMC) (Lead)

Other activities:

- Maintained group distribution
- Updated webpage contents
- Interfaced with DOE Safety Culture Improvement Panel (SCIP) and SCIP Community of Practice (CoP) working group

Safety Culture Task Team
2022 Planned Activities

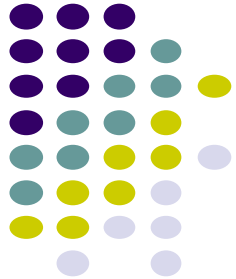


Primary Activities:

- Benchmark and identify best practices in Safety Culture process efficiencies, including DOE submittals (e.g., incorporating annual Safety Culture Sustainment and Improvement Actions in ISMS POMCs), Sustainment Plans, VPP annual assessments, etc.; publish results in a white paper. This would capture both Sustainment Plan Best Practices and the proposal to identify efficiencies with other deliverables.
- A Guidance Document for Safety Culture Practitioners on customer interface; workers, management, oversight, and other external interfaces.

Any volunteers to lead or support these initiatives?

Safety Culture Task Team
2022 Planned Activities (Cont.)



Other Activities:

- Draft & Publish Best Practices (2 in process)
- Update the Safety Culture Timeline
- Include historical Safety Culture Task Team best practices in OPEXSHARE
- Collaboration with the EFCOG Project Delivery Working Group

Spring EFCOG Meeting Planning:

- Please send any recommendations for presenters or presentation topics to Adrienne, Davyda, or Trish

We received positive feedback on the 2021 Spring Meeting.

Safety Culture Task Team
2022 Planned Activities (Cont.)

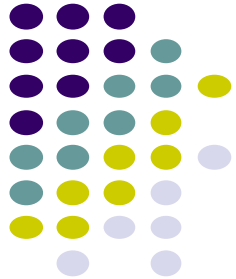
Potential Topics for 2023:

- How to ensure remote workers are engaged with safety culture, and how management maintains engagement and accountability – benchmark other federal agencies and industries, such as real estate, tech sector, Siemens

  Note: this activity will be reconsidered for 2023 based on telework norms.
- Maintaining Safety Culture through contract transitions.

Other suggestions for 2022 and 2023 are welcome!

Questions or Comments?



Adjourn
4:30 pm EST, Wednesday

Thank you for your participation!

See you at the Spring Meeting!